NAVAL POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA 93940-5002

NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

M9973

AN ASSESSMENT OF THE NAVAL FACILITIES ENGINEERING COMMAND'S INVESTMENTS IN RESEARCH AND DEVELOPMENT

by

Zane Alan Myers

June 1989

Thesis Advisor: Jerry L. McCaffery

Approved for public release; distribution is unlimited.

UNCLASSIFIED
CURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

REPORT SECURITY CLASSIFICATION CLASSIFIED	1b RESTRICTIVE MARKINGS
SECURITY CLASSIFICATION AUTHORITY	3 DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.
DECLASSIFICATION/DOWNGRADING SCHEDULE	
PERFORMING ORGANIZATION REPORT NUMBER(S)	5 MONITORING ORGANIZATION REPORT NUMBER(S)
NAME OF PERFORMING ORGANIZATION Naval Postgraduate School	6b OFFICE SYMBOL (If applicable) 54
7a NAME OF MONITORING ORGANIZATION Naval Postgraduate School	
ADDRESS (City, State, and ZIP Code) Monterey, California 93943-5000	7b ADDRESS (City, State, and ZIP Code) Monterey, California 93943-5000
NAME OF FUNDING/SPONSORING ORGANIZATION	8b OFFICE SYMBOL (If applicable)
9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
ADDRESS (City, State, and ZIP Code)	10 SOURCE OF FUNDING NUMBERS

PROGRAM ELEMENT NO	PROJECT NO	TASK NO	WORK UNIT ACCESSION NO

TITLE (Include Security Classification)
AN ASSESSMENT OF THE NAVAL FACILITIES ENGINEERING COMMAND'S INVESTMENTS IN RESEARCH AND DEVELOPMENT

PERSONAL AUTHOR(S)
YERS, Zane Alan

13a TYPE OF REPORT	13b TIME COVERED	14 DATE OF REPORT (Year, Month, Day)	15 PAGE COUNT
aster's Thesis	FROM _____ TO _____	89 June	

SUPPLEMENTARY NOTATION The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

COSATI CODES			18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Naval Civil Engineering Laboratory, Research and Development, Technology Transfer

ABSTRACT (Continue on reverse if necessary and identify by block number)

The Naval Facilities Engineering Command, like all other major commands within the Department of Defense, is interested in the cost effective utilization of their limited research and development investments. Assessments of NAVFAC's RDT&E results conducted in 1968 and 1980 established baselines for determining where improvements are needed. This study uses the results of a mail questionnaire, sent to military and civilian personnel at "NAVFAC family" activities worldwide, to provide a basis for a current assessment of how effectively NAVFAC's RDT&E investments are being utilized. This current assessment is used to make comparisons with the previously established baselines, in order to provide a basis for measuring the degree of improvement and to provide information for the development of an RDT&E investment strategy for the 1990's. The results indicate that numerous trends have been continued, progress has been made, and that there are some areas of concern.

DISTRIBUTION/AVAILABILITY OF ABSTRACT	21 ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	UNCLASSIFIED
22a NAME OF RESPONSIBLE INDIVIDUAL Jerry McCaffery	22b TELEPHONE (Include Area Code) (408) 646-2554
	22c OFFICE SYMBOL 54Mm

D Form 1473, JUN 86 *Previous editions are obsolete* SECURITY CLASSIFICATION OF THIS PAGE
S/N 0102-LF-014-6603 UNCLASSIFIED

Approved for public release; distribution is unlimited.

AN ASSESSMENT OF THE NAVAL FACILITIES ENGINEERING COMMAND'S INVESTMENTS IN RESEARCH AND DEVELOPMENT

by

Zane Alan Myers
Lieutenant, Civil Engineer Corps, United States Navy
B.S., California Polytechnic State University, 1980

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 1989

ABSTRACT

The Naval Facilities Engineering Command, like all other major commands within the Department of Defense, is interested in the cost effective utilization of their limited research and development investments. Assessments of NAVFAC's RDT&E results conducted in 1968 and 1980 established baselines for determining where improvements are needed. This study uses the results of a mail questionnaire, sent to military and civilian personnel at "NAVFAC family" activities worldwide, to provide a basis for a current assessment of how effectively NAVFAC's RDT&E investments are being utilized. This current assessment is used to make comparisons with the previously established baselines, in order to provide a basis for measuring the degree of improvement and to provide information for the development of an RDT&E investment strategy for the 1990's. The results indicate that numerous trends have been continued, progress has been made, and that there are some areas of concern.

N1993
C.1

EXECUTIVE SUMMARY

The Naval Facilities Engineering Command (NAVFAC) and its Naval Civil Engineering Laboratory (NCEL) have been aware of their responsibility for the effective utilization of Research, Development, Test and Evaluation (RDT&E) funds, since they first initiated an investment enhancement program in 1962. Assessments of NAVFAC's RDT&E investments conducted by the Naval Postgraduate School (NPS) in 1968 and 1980, assisted NAVFAC and NCEL in determining where improvements were needed and confirmed that progress was being made. In an era of considerable fiscal constraints, it has become increasingly apparent that a current assessment of NAVFAC RDT&E investment utilization is needed to develop an effective investment strategy.

Over 750 questionnaires were mailed to military and civilian members of "NAVFAC family" activities worldwide. Thirty-seven questions were used to collect their views, judgments and appraisals of the utilization of NAVFAC and NCEL's RDT&E program. The 275 responses returned were analyzed and the results compared to the results from the two previous studies.

The results of the 1968 study indicated that numerous deficiencies existed. The 1980 study showed that dramatic improvements had been made in nearly every area during the

1970's. The dramatic improvements of the 1970's helped establish higher standards for NAVFAC and NCEL's RDT&E program. These higher standards in turn, produced higher expectations on the part of the customers who utilize the RDT&E products and services. The results of this study indicate that the progress made during the 1980's has, in most cases, not been as dramatic. Trends have been continued in numerous areas and measurable progress is indicated in numerous other areas. The results also indicate that there are several areas of concern.

The results of this study have identified areas to be looked at for improvement and hopefully, will serve NAVFAC and NCEL in their development of an RDT&E investment strategy for the 1990's.

TABLE OF CONTENTS

I. INTRODUCTION 1

A. BACKGROUND 1

1. NAVFAC and RDT&E 1

2. NCEL and RDT&E 1

3. Prior Efforts to Enhance Investment Utilization 2

B. OBJECTIVES 3

C. RESEARCH QUESTIONS 3

1. Primary 4

2. Subsidiary 4

D. SCOPE, LIMITATIONS AND ASSUMPTIONS 4

II. APPROACH METHODOLOGY 5

A. MEASUREMENT OF RDT&E INVESTMENT UTILIZATION .. 5

B. DEVELOPMENT OF THE MAIL QUESTIONNAIRE 6

1. 1968 and 1980 Questionnaires 6

2. Questionnaire for This Study 7

a. Ease of Use 7

b. Format 8

c. Content 9

d. Distribution 11

III. QUESTIONNAIRE RESPONSE AND ANALYSIS 13

A. QUESTIONNAIRE RESPONSE RATE 13

B. RESPONDENT ATTRIBUTES 14

1. Organization Type 15
2. Rank/Grade 16
3. Experience Level 27
4. General Geographic Location 27
C. RESPONSE TO QUESTIONS 27
D. RESPONDENT COMMENTS AND SUGGESTIONS 30
IV. SUMMARY 68
A. CONTINUING TRENDS 68
B. IMPROVEMENTS 69
C. AREAS OF CONCERN 70
APPENDIX A QUESTIONNAIRE 72
APPENDIX B NCEL DISTRIBUTION LIST #596 74
APPENDIX C RESPONDENT COMMENTS AND SUGGESTIONS 92
BIBLIOGRAPHY 102
INITIAL DISTRIBUTION LIST..... 103

LIST OF TABLES

TABLE	DESCRIPTION	PAGE
I	ORIGIN OF QUESTIONNAIRE DISTRIBUTION LIST	12
II	QUESTIONNAIRE RESPONSE RATE	14
III	RESPONDENT'S ORGANIZATION TYPE	16
IV	RANK/GRADE OF ALL RESPONDENTS	18
V	RANK/GRADE OF PWD RESPONDENTS	18
VI	RANK/GRADE OF ROICC RESPONDENTS	19
VII	RANK/GRADE OF PWC RESPONDENTS	20
VIII	RANK/GRADE OF OICC RESPONDENTS	21
IX	RANK/GRADE OF CB RESPONDENTS	22
X	RANK/GRADE OF EFD RESPONDENTS	23
XI	RANK/GRADE OF NAVFAC RESPONDENTS	24
XII	RANK/GRADE OF RESERVE RESPONDENTS	25
XIII	RANK/GRADE OF OTHER RESPONDENTS	26
XIV	RESPONDENTS EXPERIENCE LEVELS IN YEARS	28
XV	GENERAL GEOGRAPHIC LOCATION OF RESPONDENTS	29
XVI	QUESTION 1	31
XVII	QUESTION 2	32
XVIII	QUESTION 3	33
XIX	QUESTION 4	34
XX	QUESTION 5	35
XXI	QUESTION 6	36
XXII	QUESTION 7	37

XXIII QUESTION 8 38
XXIV QUESTION 9 39
XXV QUESTION 10 40
XXVI QUESTION 11 41
XXVII QUESTION 12 42
XXVIII QUESTION 13 43
XXIX QUESTION 14 44
XXX QUESTION 15 45
XXXI QUESTION 16 46
XXXII QUESTION 17 47
XXXIII QUESTION 18 48
XXXIV QUESTION 19 49
XXXV QUESTION 20 50
XXXVI QUESTION 21 51
XXXVII QUESTION 22 52
XXXVIII QUESTION 23 53
XXXIX QUESTION 24 54
XL QUESTION 25 55
XLI QUESTION 26 56
XLII QUESTION 27 57
XLIII QUESTION 28 58
XLIV QUESTION 29 59
XLV QUESTION 30 60
XLVI QUESTION 31 61
XLVII QUESTION 32 62
XLVIII QUESTION 33 63

XLIX QUESTION 34 64
L QUESTION 35 65
LI QUESTION 36 66
LII QUESTION 37 67

ACKNOWLEDGEMENT

I would like to acknowledge Dr. John W. Creighton, of the Naval Postgraduate School, for the advise, the invaluable insights and counsel that he provided. I am deeply indebted to Mr. Peter Treim, Larri Johnson and Joyce Skoien of the Publications and Graphics Division at the Naval Engineering Laboratory, for their invaluable assistance in the selection of a distribution list and the formatting, printing and mailing of the questionnaire. I would like to thank William Powers, Cynthia Williams, Major William Doe, Stephen Ehret and Dr. John Brahtz of NCEL for the fine assistance that they provided. A special thank you to my family for their strong support.

I. INTRODUCTION

A. BACKGROUND

1. NAVFAC and RDT&E

The Naval Facilities Engineering Command (NAVFAC) executes a program of research, development, test and evaluation (RDT&E) for shore facilities, advance base and amphibious operations, sea floor structures, environmental control and those aspects of weapons systems related to its mission. A significant portion of the emphasis of NAVFAC's program is to provide RDT&E which will benefit the Navy's shore facilities in efficiently and effectively meeting their independent missions. NAVFAC's link to the shore facilities is primarily through the Engineering Field Divisions (EFD's), Public Works Centers (PWC's), Public Works Departments (PWD's), and Officer-in-Charge of Construction (OICC's) Resident-Officer-in-Charge of Construction (ROICC's) contracting activities.

2. NCEL and RDT&E

A major portion of NAVFAC's RDT&E effort is assigned to the Naval Civil Engineering Laboratory (NCEL), Port Hueneme, California, in the form of specific research projects. The mission of NCEL is:

> To be the principal Navy Research, Development, Test and Evaluation (RDT&E) center for shore facilities, including fixed surface and subsurface ocean facilities, and for the Navy and Marine construction forces...

As such, NCEL provides RDT&E in support of planning, design, construction, maintenance, and operation of Naval Shore Facilities, the Naval Construction Forces, and the Marine Corps.

Both NAVFAC and NCEL share a vested interest in the efficient and effective use of limited RDT&E resources, especially in the current era of considerable fiscal constraints.

3. Prior Efforts to Enhance Investment Utilization

In 1967 NAVFAC Headquarters directed NCEL to determine the extent to which the technology produced its RDT&E investments was being used by field activities. NCEL turned to the Naval Postgraduate School (NPS) to assist in this effort in order to instill a behavioral science point of view and to ensure objectivity. The initial NPS study began in 1968 with the assumptions that part of the responsibility for use of NCEL's RDT&E products rested with NCEL and that all field activities were aware of NCEL's research efforts. The study, using a mail questionnaire of field activities, exposed deficiencies in NCEL's RDT&E documentation and distribution systems.

Several more studies of NAVFAC's RDT&E efforts were conducted during the 1970's by NPS's J.A. Jolly and J.W.

Creighton in order to better understand the processes involved in the transfer of RDT&E technology. Since then numerous changes have been implemented by NAVFAC and NCEL in an effort to improve the effectiveness and efficiency of the utilization of RDT&E results. A significant change was NCEL's establishment in 1971 of the Field Engineering Support Office (FESO). The prime purpose of FESO was to see that field activity customers were satisfied and that timely responses to their requests for technical information were provided by NCEL. An additional study was conducted by NPS in 1980 to determine the results of efforts made during the 1970's to improve the utilization of technology produced by NAVFAC's and NCEL's RDT&E investments. The 1980 study, using over 2000 mail questionnaires determined that NCEL had steadily improved in numerous areas and that users of their RDT&E results had a positive opinion of NCEL and its work.

B. OBJECTIVES

The objectives of this study are to provide a current assessment of the utilization of NAVFAC's RDT&E investments and provide a measure of improvement in the utilization of RDT&E results over the baselines established by the 1968 and 1980 studies.

C. RESEARCH QUESTIONS

In pursuing the objectives of this study the following research questions can be asked:

1. Primary

- Is NAVFAC utilizing its research, development, testing and evaluation (RDT&E) funds effectively?

2. Subsidiary

- What level of satisfaction exists with the field activities who are the end users of NAVFAC and NCEL's RDT&E investment efforts?
- Has NAVFAC progressed in attaining better transfer of RDT&E results to field activities since the last assessment was performed in 1980?
- What suggestions do personnel at field activities have for improving the effectiveness of NAVFAC RDT&E utilization?

D. SCOPE, LIMITATIONS AND ASSUMPTIONS

The scope of this study is limited to the assessment of the utilization of NAVFAC's RDT&E investment which is provided to NCEL and does not address the relatively small RDT&E investments that NAVFAC provides elsewhere nor the relatively small RDT&E investments which NCEL receives from sponsors other than NAVFAC. The purpose of this limitation in scope to the "NAVFAC Family", is to provide information that NAVFAC and NCEL will find useful in making management decisions over which they can exercise full control. Distribution of the mail questionnaire used in this study was limited to the NAVFAC family activities, organizations and positions within, that were currently on an NCEL distribution list to receive NCEL reports or other documents. It was reasoned that this distribution would reach those who would be most familiar with NAVFAC and NCEL's RDT&E efforts.

II. APPROACH METHODOLOGY

A. MEASUREMENT OF RDT&E INVESTMENT UTILIZATION

The Opinion Research Method was deemed to be most appropriate for the collection of data to provide a measure of NAVFAC's RDT&E investment utilization for this study. Empirical, archival, and other analytic research methods were ruled out because they either could not be applied at all, were far too costly, or were simply too impractical.

The Opinion Research Method lends itself to several different approaches for the collection of data. The use of a mail questionnaire was determined to be best suited to this study. Travel to all "NAVFAC family" activities or even a representative random sample of activities to interview personnel, was deemed to be impractical due to time, travel and resource constraints. The use of telephone interviews was also deemed impractical due to time constraints, logistics and poor cost effectiveness. The use of a mail questionnaire was considered to be the most practical and most cost effective approach to collect the views, judgments and appraisals held by a wide variety of field activity personnel.

B. DEVELOPMENT OF THE MAIL QUESTIONNAIRE

1. 1968 and 1980 Questionnaires

The NPS study conducted in 1980, was initially intended to replicate the 1968 study in its entirety. However, after discussions with numerous individuals at field activities and at NCEL, the study team determined that times had changed and not all the questions used in 1968 were still appropriate for a replicative study twelve years later. The 1968 questionnaire contained 58 questions of which 20 were carried over into the 1980 questionnaire. It should be noted that the wording of these questions was in some instances modified, however the basic intent of the question remained unchanged. These 20 questions helped to establish continuity with the 1968 study so that trend analysis could be effected. The 1980 study team developed 38 new questions for a total of 58 questions, thus matching the total in the 1968 study. The 1968 study questionnaire format is not readily available, however the 20 repeated questions presented in the 1980 study appeared to ask the respondent to agree or disagree with the question. The 1980 questionnaire utilized the Likert scale for most questions, whereby the respondent is asked to express his beliefs, attitudes and opinions by responding within a given range. The range included **Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD).** If the respondent felt unqualified to answer or had no opinion he was asked to skip

the question, leaving it blank. It was also realized that some of the questions would not be applicable to all recipients of the questionnaire, thus resulting in no response. Five of the 58 questions were in a multiple-choice or true-false format. Additionally, several questions at the end of the questionnaire requested attribute information including rank/grade, type of organization and number of years of experience in NAVFAC organizations. There is no known documentation as to the distribution of the 1968 questionnaire. The 1980 study utilized an NCEL general distribution list and targeted all Navy users of NCEL reports and documents. A total of 2062 questionnaires were distributed in 1980.

2. Questionnaire For This Study

Nine years have elapsed since the last study was conducted in 1980 and just as the 1980 study team had found, the dynamics of the environment make a totally replicative study inappropriate for 1989. The prime objectives in the development of this questionnaire were to gather meaningful data that would best answer the research questions posed, from the widest dissemination possible. Balancing and blending of the following considerations was required.

a. Ease of Use

In order to help make the questionnaire "user friendly", considerable effort was directed toward trying to make the questionnaire as easy as possible for the

respondent to execute. Using the latest in desktop-publishing-type computer software, a "single-sheet package" was developed which contained the respondent's mailing address; a letter from NPS explaining the purpose of the study; instructions for completing the questionnaire; the question section; and a pre-addressed return mailer. This single-sheet was printed on gold colored 60 lb. paper for high visibility and durability. It only required that the respondent unstaple it, read the brief letter and instructions, complete the questionnaire, fold, staple and drop in the mail. In consideration of the respondent's limited availability of time, fifteen minutes was solicited in the letter of explanation for the completion of the questionnaire. In further consideration of the value of time to the respondent, he was requested to answer the questions only upon his behalf rather than his organization's. The intent was to allow an immediate completion of the questionnaire upon opening, rather than the respondent possibly setting it aside to gather the organization's perspective and respond at a later time. It was felt that this effort would improve the questionnaire completion/response rate and further minimize the time requested of the respondent.

b. Format

The Likert scale provided the basic format in the 1980 questionnaire. It was felt that an added benefit

of selecting the Likert scale format was to establish a point of continuity to the 1980 study. The questions were not categorized in this study as they were in the 1980 questionnaire, primarily because it was felt that in the respondent's interest to minimize the time he devotes to responding, he would not bother to distinguish between categories, but would simply hurry through the questions. It was realized in all the studies that because of differing perspectives, some of the questions would not be applicable to all recipients, and would result in no response. As in the 1980 study, it was still desirable to request information on respondent attributes in order to better understand responses. It was also desirable to encourage the respondent to provide comments in a space provided. It was considered important to maintain an assurance of anonymity to the respondent in order to ensure free and open responses.

c. Content

Determining the content of the questionnaire required a proper balance of questions which would remain sensitive to the respondent's limited availability of time, provide continuity with the previous studies and address current issues. In considering the demand for the respondent's time, it was desirable to keep the number of questions to a minimum, while still collecting the data which would help answer the research questions posed. With

a target of 15 minutes as reasonable for the completion of the questionnaire, it was necessary to reduce the number of questions considerably from the 58 used in the two previous studies. It was evident in the 1980 questionnaire that many questions, while not worded exactly the same, did request similar information.

Considerable emphasis was placed on trying to build upon the baselines established in the two previous studies to facilitate trend analysis. An attempt was made to meet these objectives by including nine questions from the 1968 study which still address current concerns. These nine questions had also been included in the 1980 study and thus provide continuity across all three studies. Twenty-one questions new to the 1980 study, which still address current concerns, were included in this study. They provide additional continuity. The wording of these 30 questions was in some cases modified for clarification, to minimize bias, and provide overall balance. Seven new questions were added to explore additional current issues posed by personnel at NAVFAC headquarters, NCEL and from the Blue Ribbon Panel's Report on NCEL. The resulting questionnaire for this study is comprised of 37 questions. See Appendix A.

In addition to questions concerning current RDT&E issues, it is desirable to attain certain attributes of the respondent in order to better understand the

perspective and opinions expressed in his answers. The respondent's organization type, his rank or grade, and his experience level were helpful for understanding responses in the 1980 study. These same attributes are used in this study because they are still considered to be helpful, and their use provides continuity with the 1980 study. A fourth attribute not in the 1980 study, general geographic location, is also used in this study to see if it affects the respondent's attitudes, beliefs and opinions.

d. Distribution

The 1980 study distributed 2175 questionnaires using NCEL's general distribution list and selecting only Navy organizations from that list. Distribution for this study was determined by using several NCEL distribution lists resulting in a total of 759 recipients. In order to avoid duplication of distribution and stay within the scope of the study (organizations inside of the "NAVFAC family" of activities who are familiar with NCEL), a new distribution list was made specially for this study. The following table displays how the distribution list for this study (NCEL #596) was determined. A copy of NCEL List #596 is provided in Appendix B.

TABLE I

ORIGIN OF QUESTIONNAIRE DISTRIBUTION LIST

NCEL LIST #	LIST CONTENT	# ON LIST	# SELECTED	DELETIONS
588	85,86	650	241	82 & OUT OF SCOPE
589	82	700	393	OUT OF SCOPE
585	PWO's	155	48	82,85,86
592	ROICC's	65	33	82,85,86
592	SCE's	95	44	82,85,86
596	ALL OF ABOVE		759	

82= Guides/Abstracts Recipients
85= Techdata Sheet Recipients
86= Tech Reports/ Notes Recipients

III. QUESTIONNAIRE RESPONSE AND ANALYSIS

A. QUESTIONNAIRE RESPONSE RATE

A total of 759 questionnaires were distributed by mail. No questionnaires were returned to the sender by the postal service as non-deliverable. There were none returned in which the respondent indicated that receipt of the questionnaire was due to an error in distribution. A total of 275 questionnaires were returned completed, an overall response rate of 36.2%. Twenty of the 275 responses returned were photocopies that recipients of original questionnaires had made for their colleagues to complete and return. This was encouraged in both the introductory letter as well as the instructions for the questionnaire (see Appendix A), in order to obtain responses from additional personnel familiar with NCEL. Taking this into consideration, the response rate for the 255 original questionnaires returned is 33.6%. Respondents who returned original questionnaires indicated that they made a total of 71 photocopies for their colleagues. The response rate for the 20 copies returned from the 71 made, is 28.2%. Increasing the total distribution by the 71 copies made, from 759 to 838, revises the overall response rate to 32.8%. These figures are presented in the following table for further clarification:

TABLE II

QUESTIONNAIRE RESPONSE RATE

ORIGINAL DISTRIBUTION	759
NUMBER OF COPIES REPORTED MADE	71
NUMBER OF COPIES RETURNED	20
NUMBER OF ORIGINALS RETURNED	255
TOTAL RESPONSE/ORIGINAL DISTRIBUTION = (255+20)/759= 36.2%	
ORIGINALS RETURNED/ORIGINALS DISTRIBUTED = 255/759= 33.6%	
COPIES RETURNED/COPIES DISTRIBUTED = 20/71 = 28.2%	
TOTAL RESPONSE/TOTAL DISTRIBUTION = 275/(759+71) = 32.8%	

In comparison, the study performed in 1980 obtained an overall questionnaire response rate of 36.3%.

B. RESPONDENT ATTRIBUTES

In order to more fully appreciate the respondent's attitudes, beliefs and opinions, four attributes were requested, namely: his organization type, his rank or grade, his experience level with NAVFAC activities, and his general geographic location. These four attributes, which produced 1100 data points for the 275 responses received, are presented in the following sections. Where percentages are provided, they have been rounded to the nearest 1%.

1. Organization Type

Respondents were requested to provide the primary type of organization to which they belong. The purpose is to provide the reader an understanding of the organizational perspectives held by the respondents. Eight types of organizations within the "NAVFAC family", which typically interact with NCEL, were categorized. They include: Public Works Departments (PWD), Resident Officer in Charge of Construction (ROICC), Public Works Centers (PWC), Officer in Charge of Construction (OICC), Construction Battalions (CB), Engineering Field Divisions (EFD), Naval Facilities Engineering Command Headquarters (NAVFAC), and Reserve components of NAVFAC activities (RESERVE). A ninth category, which includes all types of activities other than the above eight, titled (OTHER) was also included. Respondents who indicated (OTHER) were asked to specify what type of other organization. It is noted that 41 of the 45 respondents who indicated (OTHER), specified a Staff Civil Engineer organization, Major Claimant organization, or some other staff organization involved in the Navy facilities arena. In contrast, the 1980 study (OTHER) category, was made up of those outside the "NAVFAC Family" and therefor, not involved with Navy facilities. Future studies should consider including a tenth category, titled (STAFF) or (STAFF CIVIL ENGINEER) in order to further distinguish the organizational perspectives of the respondents. The

organizational type is distinguished throughout most of the tables presented in this study. The distribution of respondents by organization type is summarized in Table 3 with comparisons to the 1980 study.

TABLE III

RESPONDENT'S ORGANIZATION TYPE

RESPONSE DISTRIBUTION (PERCENT)					
1989 STUDY			1980 STUDY		
GROUP	FREQUENCY	PERCENT OF TOTAL	GROUP	FREQUENCY	PERCENT OF TOTAL
PWD	102	37%	PWD	260	35%
ROICC	23	8%	ROICC	53	7%
PWC	18	7%	PWC	42	6%
OICC	8	3%	OICC	13	2%
CB	16	6%	CB	22	3%
EFD	36	13%	EFD	136	18%
NAVFAC	22	8%	NAVFAC	60	8%
RESERVE	5	2%	NCEL	1	0%
OTHER	45	16%	OTHER	163	22%
TOTAL	275	100%	TOTAL	750	100%

2. Rank/Grade

The rank of military personnel and the grade of civilian personnel are summarized for all respondents in Table 4 and by organization type in Tables 5 through 13. Results from the 1980 study are provided in the right-most column for comparison purposes.

TABLE IV

RANK/GRADE OF ALL RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	14	5%	1%
CDR	28	10%	7%
LCDR	50	18%	12%
LT	61	22%	13%
LTJG	8	3%	5%
ENS	4	1%	2%
GM/GS-15	6	2%	3%
GS/GM-14	19	7%	6%
GS/GM-13	25	9%	14%
GS-12	38	14%	25%
GS-11	7	3%	10%
OTHER	15	5%	3%
TOTAL	275	100%	100%
MILITARY	165	59%	40%
CIVILIAN	95	35%	58%

COMMENTS: Military now comprise 59% of the responses as compared to only 40% in the 1980 study. The mix of respondents (military vs civilian) has reversed, which could be a significant factor in making comparisons between the two studies.

TABLE V

RANK/GRADE OF PWD RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	2	2%	0%
CDR	7	7%	7%
LCDR	16	16%	12%
LT	31	30%	14%
LTJG	3	3%	7%
ENS	1	1%	5%
GM/GS-15	0	0%	0%
GS/GM-14	1	1%	2%
GS/GM-13	8	8%	16%
GS-12	21	21%	24%
GS-11	5	5%	9%
OTHER	7	7%	4%
TOTAL	102	100%	100%

TABLE VI

RANK/GRADE OF ROICC RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	0	0%	0%
CDR	5	22%	9%
LCDR	7	30%	28%
LT	8	35%	36%
LTJG	1	4%	9%
ENS	2	9%	0%
GM/GS-15	0	0%	0%
GS/GM-14	0	0%	0%
GS/GM-13	0	0%	4%
GS-12	0	0%	13%
GS-11	0	0%	0%
OTHER	0	0%	0%
TOTAL	23	100%	100%

TABLE VII

RANK/GRADE OF PWC RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	0	0%	2%
CDR	3	17%	5%
LCDR	1	6%	10%
LT	3	17%	14%
LTJG	0	0%	12%
ENS	1	6%	0%
GM/GS-15	0	0%	0%
GS/GM-14	3	17%	2%
GS/GM-13	2	11%	31%
GS-12	3	17%	21%
GS-11	1	6%	2%
OTHER	1	6%	1%
TOTAL	18	100%	100%

TABLE VIII

RANK/GRADE OF OICC RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	1	13%	0%
CDR	1	13%	23%
LCDR	2	25%	15%
LT	2	25%	23%
LTJG	1	13%	0%
ENS	0	0%	0%
GM/GS-15	0	0%	8%
GS/GM-14	0	0%	15%
GS/GM-13	0	0%	0%
GS-12	1	13%	8%
GS-11	0	0%	8%
OTHER	0	0%	0%
TOTAL	8	100%	100%

TABLE IX

RANK/GRADE OF CB RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	0	0%	0%
CDR	5	31%	5%
LCDR	3	19%	41%
LT	4	25%	18%
LTJG	2	13%	18%
ENS	0	0%	5%
GM/GS-15	0	0%	0%
GS/GM-14	0	0%	0%
GS/GM-13	0	0%	4%
GS-12	0	0%	9%
GS-11	0	0%	0%
OTHER	2	13%	0%
TOTAL	16	100%	100%

TABLE X

RANK/GRADE OF EFD RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	5	14%	2%
CDR	2	6%	1%
LCDR	2	6%	2%
LT	0	0%	0%
LTJG	0	0%	0%
ENS	0	0%	0%
GM/GS-15	3	8%	3%
GS/GM-14	8	22%	9%
GS/GM-13	7	19%	18%
GS-12	8	22%	44%
GS-11	1	3%	18%
OTHER	0	0%	3%
TOTAL	36	100%	100%

TABLE XI

RANK/GRADE OF NAVFAC RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	3	14%	0%
CDR	1	5%	5%
LCDR	1	5%	2%
LT	0	0%	2%
LTJG	0	0%	2%
ENS	0	0%	0%
GM/GS-15	3	14%	10%
GS/GM-14	4	18%	15%
GS/GM-13	6	27%	8%
GS-12	3	14%	33%
GS-11	0	0%	17%
OTHER	1	5%	6%
TOTAL	22	100%	100%

TABLE XII

RANK/GRADE OF RESERVE RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	1	20%	NOT USED
CDR	2	40%	
LCDR	0	0%	
LT	1	20%	
LTJG	0	0%	
ENS	0	0%	
GM/GS-15	0	0%	
GS/GM-14	0	0%	
GS/GM-13	0	0%	
GS-12	1	20%	
GS-11	0	0%	
OTHER	0	0%	
TOTAL	5	100%	0%

TABLE XIII

RANK/GRADE OF OTHER RESPONDENTS

RANK/GRADE	RESPONSE	PERCENT OF TOTAL	1980 PERCENT OF TOTAL
CAPT	2	4%	4%
CDR	2	4%	9%
LCDR	18	40%	15%
LT	12	27%	17%
LTJG	1	2%	3%
ENS	0	0%	2%
GM/GS-15	0	0%	7%
GS/GM-14	3	7%	8%
GS/GM-13	2	4%	10%
GS-12	1	2%	14%
GS-11	0	0%	9%
OTHER	4	9%	2%
TOTAL	45	100%	100%

3. Experience Level

Respondents were requested to provide the years of experience they have with NAVFAC-related activities such as design, construction, maintenance, planning, CB operations, etc. The purpose is to provide the reader with an understanding of the experience levels of the respondents within different organization types and ascertain differences with the 1980 study results. Table 14 provides the mean experience level and standard deviation by organization type for this study, and provides results from the 1980 study for comparison.

4. General Geographic Location

Respondents were asked to indicate their general geographic location as either Overseas, East Coast, West Coast, or Central CONUS. This information was compiled to give the reader an understanding of the general geographic dispersion of the respondents, their organizations and their proximity to NCEL. Table 15 provides the response distributions by organization type.

C. RESPONSE TO QUESTIONS

The questionnaire for this study was comprised of 37 questions (see Appendix A) and generated over 10,000 data points for the 275 responses. This section presents a table for each of the 37 questions with a response analysis which includes:

TABLE XIV

RESPONDENTS EXPERIENCE LEVELS IN YEARS

1989 STUDY ORGANIZATION	FREQUENCY	MEAN YEARS	STANDARD DEVIATION
PWD	102	10.89	6.60
ROICC	23	10.00	5.99
PWC	18	15.22	10.10
OICC	8	12.25	6.63
CB	16	12.28	5.82
EFD	36	17.83	6.65
NAVFAC	22	16.00	7.55
RESERVE	5	13.00	7.80
OTHER	45	11.76	6.25
TOTAL	275		
MEAN OF TOTAL RESPONSE>		12.72 years	

1980 STUDY ORGANIZATION	FREQUENCY	MEAN YEARS	STANDARD DEVIATION
PWD	260	13.02	8.50
ROICC	53	10.11	7.04
PWC	42	12.48	9.33
OICC	13	15.31	6.82
CB	22	9.96	7.77
EFD	136	11.52	7.93
NAVFAC	60	12.42	9.63
NCEL	1	30	0.00
OTHER	163	10.07	8.49
TOTAL	750		
MEAN OF TOTAL RESPONSE>		not available	

NOTE: Approximately 68% of respondents will have an experience level within +/- one standard deviation of the mean value.

TABLE XV

GENERAL GEOGRAPHIC LOCATION OF RESPONDENTS

		RESPONSE DISTRIBUTION				RESPONSE DISTRIBUTION (percent)			
GROUP	FREQUENCY	OVERSEAS	EASTCOAST	WESTCOAST	CENTRAL	OVERSEAS	EASTCOAST	WESTCOAST	CENTRAL
PWD	102	33	34	22	13	32%	33%	22%	13%
ROICC	23	5	7	11	0	22%	30%	48%	0%
PWC	18	4	4	7	3	22%	22%	39%	17%
OICC	8	4	2	2	0	50%	25%	25%	0%
CB	16	3	6	4	3	19%	38%	25%	19%
EFD	36	6	22	8	0	17%	61%	22%	0%
NAVFAC	22	0	19	3	0	0%	86%	14%	0%
RESERVE	5	1	1	2	1	20%	20%	40%	20%
OTHER	45	13	14	13	5	29%	31%	29%	11%
TOTAL	275	69	109	72	25				
MEAN OF TOTAL RESPONSE----------->>						25%	40%	26%	9%

- The organization type
- Frequency of response
- Response distribution
- Response distribution as a percent of frequency
- The mean of the total responses as a percent
- If there was a question with similar meaning used on the 1980 or 1968 study questionnaires, the question number and the means of the total responses as a percent, are provided for comparison purposes and trend analysis.

Comments providing some interpretation of the data, including trend analysis, are provided at the bottom of each table. Where percentages are provided they have been rounded to the nearest one percent. Where the wording of the question has been reversed from the previous study, the response results for the previous study have also been reversed for ease of comparison.

D. RESPONDENT COMMENTS AND SUGGESTIONS

The questionnaire encouraged the respondents to provide comments or suggestions that they may have concerning NAVFAC and NCEL's RDT&E program. To ensure the anonymity of reponses, the comments and suggestions provided in Appendix C, indicate only a respondent's rank or grade, organization type and level of experience with NAVFAC related activities. The comments and suggestions in Appendix C have been organized first by organization type, then by rank or grade level and finally by years of experience.

TABLE XVI

QUESTION 1

QUESTION 1: I understand the purpose and mission of NCEL.

		RESPONSE DISTRIBUTION					RESPONSE DISTRIBUTION (percent)				
GROUP	FREQUENCY	SA	A	D	SD	NA	SA	A	D	SD	NA
PWD	102	31	58	7	3	3	30%	57%	7%	3%	3%
ROICC	23	7	13	3	0	0	30%	57%	13%	0%	0%
PWC	18	2	16	0	0	0	11%	89%	0%	0%	0%
OICC	8	1	7	0	0	0	13%	88%	0%	0%	0%
CB	16	6	8	2	0	0	38%	50%	13%	0%	0%
EFD	36	7	26	3	0	0	19%	72%	8%	0%	0%
NAVFAC	22	12	8	2	0	0	55%	36%	9%	0%	0%
RESERVE	5	1	4	0	0	0	20%	80%	0%	0%	0%
OTHER	45	10	33	2	0	0	22%	73%	4%	0%	0%
TOTAL	275	77	173	19	3	3					
MEAN OF TOTAL RESPONSE----------->>							28%	63%	7%	1%	1%
							AGREE	91%	DISAGREE	8%	NA 1%
1980 STUDY (question 1)----------->>							25%	65%	8%	1%	1%
							AGREE	90%	DISAGREE	9%	NA 1%
1968 STUDY (question 1)----------->>							AGREE	33%	DISAGREE	67%	

COMMENTS: Overall results obtained are consistent with the 1980 study, over 90% of respondents continue to feel that they understand NCEL's purpose and mission. NAVFAC Hdqtrs respondents felt the strongest agreement (55%) and ROICC's and CB's had the most disagreement (13%).

TABLE XVII

QUESTION 2

QUESTION 2: Which of the following do you feel best describes the type of work performed by NCEL? (check one)

		RESPONSE DISTRIBUTION					RESPONSE DISTRIBUTION (percent)				
GROUP	FREQUENCY	APPLIED	THEORY	CONSULT	MIXTURE	NA	APPLIED	THEORY	CONSULT	MIXTURE	NA
PWD	102	17	12	5	66	2	17%	12%	5%	65%	2%
ROICC	23	9	1	0	12	1	39%	4%	0%	52%	4%
PWC	18	6	0	1	9	2	33%	0%	6%	50%	11%
OICC	8	1	0	1	6	0	13%	0%	13%	75%	0%
CB	16	3	0	0	13	0	19%	0%	0%	81%	0%
EFD	36	7	0	2	26	1	19%	0%	6%	72%	3%
NAVFAC	22	3	3	0	15	1	14%	14%	0%	68%	5%
RESERVE	5	3	0	0	2	0	60%	0%	0%	40%	0%
OTHER	45	14	2	1	28	0	31%	4%	2%	62%	0%
TOTAL	275	63	18	10	177	7					
MEAN OF TOTAL RESPONSE----------->>							23%	7%	4%	64%	3%
1980 STUDY (question 6, similiar)----------->>							26%	5%	-	61%	9%

COMMENTS: The question differs from the 1980 study, in that consultation has been included in the field of possible responses. Sixty-one percent of respondents in 1980 felt that NCEL performed a mixture of applied and theoretical research. The results of this study indicate that 64% of respondents now feel that NCEL is a full spectrum lab.

TABLE XVII

QUESTION 3

QUESTION 3: NCEL personnel know nothing about field activity problems.

		RESPONSE DISTRIBUTION					RESPONSE DISTRIBUTION (percent)				
GROUP	FREQUENCY	SA	A	D	SD	NA	SA	A	D	SD	NA
PWD	102	3	9	59	29	2	3%	9%	58%	28%	2%
ROICC	23	1	0	16	6	0	4%	0%	70%	26%	0%
PWC	18	0	1	13	4	0	0%	6%	72%	22%	0%
OICC	8	0	0	4	4	0	0%	0%	50%	50%	0%
CB	16	0	0	9	7	0	0%	0%	56%	44%	0%
EFD	36	2	2	24	8	0	6%	6%	67%	22%	0%
NAVFAC	22	3	4	10	5	0	14%	18%	45%	23%	0%
RESERVE	5	0	0	3	2	0	0%	0%	60%	40%	0%
OTHER	45	1	0	30	13	1	2%	0%	67%	29%	2%
TOTAL	275	10	16	168	78	3					
MEAN OF TOTAL RESPONSE----------->>							4%	6%	61%	28%	1%
							AGREE	10%	DISAGREE	89%	NA 1%
1980 STUDY (question 2)----------->>							2%	9%	65%	21%	3%
							AGREE	11%	DISAGREE	86%	NA 3%
1968 STUDY (question 2)----------->>							AGREE	-	DISAGREE	majority	

COMMENTS: Overall results are consistent with the 1980 study. Respondents strongly feel that NCEL personnel are knowledgable about field activity problems Approximately one-third of NAVFAC Hdqtrs respondents (32%), feel NCEL personnel know nothing about field activity problems. OICC's (100%) feel that NCEL personnel are knowledgeable about field problems and 50% feel strongly that NCEL personnel are knowledgeable of field problems.

TABLE XIX

QUESTION 4

QUESTION 4: I find it professionally informative to read NCEL literature.

		RESPONSE DISTRIBUTION					RESPONSE DISTRIBUTION (percent)				
GROUP	FREQUENCY	SA	A	D	SD	NA	SA	A	D	SD	NA
PWD	102	16	72	9	2	3	16%	71%	9%	2%	3%
ROICC	23	3	16	1	2	1	13%	70%	4%	9%	4%
PWC	18	4	12	1	0	1	22%	67%	6%	0%	6%
OICC	8	2	5	1	0	0	25%	63%	13%	0%	0%
CB	16	4	10	1	1	0	25%	63%	6%	6%	0%
EFD	36	3	29	3	1	0	8%	81%	8%	3%	0%
NAVFAC	22	3	13	5	1	0	14%	59%	23%	5%	0%
RESERVE	5	1	3	0	0	1	20%	60%	0%	0%	20%
OTHER	45	6	32	3	2	2	13%	71%	7%	4%	4%
TOTAL	275	42	192	24	9	8					
MEAN OF TOTAL RESPONSE---->>							15%	70%	9%	3%	3%
							AGREE	85%	DISAGREE	12%	NA 3%
1980 STUDY (question 32)---->>							13%	72%	7%	1%	7%
							AGREE	85%	DISAGREE	8%	NA 7%

COMMENTS: Respondents at all activities strongly agree that NCEL literature is informative. These results are consistent with the 1980 study. NAVFAC Hdqtrs respondents (73%) agreed least.

TABLE XX

QUESTION 5

QUESTION 5: NCEL is responsive to my most common technical needs.

		RESPONSE DISTRIBUTION					RESPONSE DISTRIBUTION (percent)				
GROUP	FREQUENCY	SA	A	D	SD	NA	SA	A	D	SD	NA
PWD	102	9	56	27	3	7	9%	55%	26%	3%	7%
ROICC	23	2	11	1	2	7	9%	48%	4%	9%	30%
PWC	18	2	11	4	0	1	11%	61%	22%	0%	6%
OICC	8	1	6	1	0	0	13%	75%	13%	0%	0%
CB	16	2	7	4	2	1	13%	44%	25%	13%	6%
EFD	36	4	15	12	1	4	11%	42%	33%	3%	11%
NAVFAC	22	1	12	6	3	0	5%	55%	27%	14%	0%
RESERVE	5	0	3	1	0	1	0%	60%	20%	0%	20%
OTHER	45	1	28	7	2	7	2%	62%	16%	4%	16%
TOTAL	275	22	149	63	13	28					
MEAN OF TOTAL RESPONSE---------->>							8%	54%	23%	5%	10%
							AGREE	62%	DISAGREE	28%	NA 10%
1980 STUDY (question 3, opposite wording)---------->>							15%	61%	16%	2%	6%
							AGREE	76%	DISAGREE	18%	NA 6%
1968 STUDY (question 3, opposite wording)---------->>							AGREE	36%	DISAGREE	18%	NA 46%

COMMENTS: Respondents indicate that NCEL is not as reponsive (62% vs 76%) overall as they were in 1980. OICC's (88%) feel that NCEL is most responsive while EFD's (53%) feel NCEL is least responsive. NAVFAC Hdqtrs (14%) and CB's (13%) indicate that they strongly disagree that NCEL is responsive.

I.D. NO. OF CODE	COPIES	ROOT NAME/SUFFIX
339.007	1	NAVUSEAWARENGSTA/PWO, Keyport, WA
339.495	1	NAVWPNCEN/AROICC, China Lake, CA
339.890	1	NAVWPNCEN/Code 2661, China Lake, CA
339.052	1	NAVWPNCEN/PWO (Code 266), China Lake, CA
340.799	1	NAVWPNEVALFAC/Code 50, Albuquerque, NM
340.161	1	NAVWPNEVALFAC/Code 70 (D. Krivitsky), Albuquerque, NM
340.935	1	NAVWPNSTA/Code 09, Concord, CA
339.482	1	NAVWPNSTA/Code 0911, Seal Beach, CA
340.792	1	NAVWPNSTA/Code 092, Charleston, SC
339.364	1	NAVWPNSTA/Code 092, Concord, CA
340.464	1	NAVWPNSTA/Code 092, Seal Beach, CA
340.182	1	NAVWPNSTA/Code 09201, Concord, CA
339.956	1	NAVWPNSTA/Code 09221, Concord, CA
339.497	1	NAVWPNSTA/Code 092A, Seal Beach, CA
339.853	1	NAVWPNSTA/Code 092B (Hunt), Yorktown, VA
339.245	1	NAVWPNSTA/Code 093, Yorktown, VA
340.889	1	NAVWPNSTA/Det, PWO, Fallbrook, CA
340.473	1	NAVWPNSTA/Dir, Maint Control, PWD, Concord, CA
340.122	1	NAVWPNSTA/Earle, Code 092, Colts Neck, NJ
339.832	1	NAVWPNSTA/Earle, Code 0922, Colts Neck, NJ
340.722	1	NAVWPNSTA/Earle, PWO (Code 09B), Colts Neck, NJ
340.098	1	NAVWPNSTA/Energy Conserv, Yorktown, VA
340.433	1	NAVWPNSTA/PWO, Charleston, SC
339.242	1	NAVWPNSTA/PWO, Concord, CA
339.246	1	NAVWPNSTA/PWO, Seal Beach, CA
339.363	1	NAVWPNSTA/PWO, Yorktown, VA
340.092	1	NAVWPNSUPPCEN/Code 092E, Crane, IN
339.849	1	NAVWPNSUPPCEN/Code 0931, Crane, IN
340.849	1	NAVWPNSUPPCEN/PWO, Crane, IN
339.821	1	NEESA/Code 11E (Swanson)
339.324	1	NETC/PWO, Newport, RI
341.008	1	NCR/20, CO
341.068	1	NCR/20, Code R24 (CCCT)
341.009	1	NCR/20, Code R31, Gulfport, MS
341.015	1	NCR/20, Code R70
341.082	1	NCR/20, Code R70.12, Gulfport, MS
341.071	1	NCR/31, Code R00, Port Hueneme, CA
341.056	1	NCR/31, Code R50, Port Hueneme, CA
343.007	1	NEESA/Code 111, Port Hueneme, CA
343.008	1	NEESA/Code 111C (Hickenbottom), Port Hueneme, CA
343.009	1	NEESA/Code 111E (McClaine), Port Hueneme, CA
343.012	1	NEESA/Code 113M, Port Hueneme, CA
343.013	1	NEESA/Code 113M2, Port Hueneme, CA

I.D. CODE	NO. OF COPIES	ROOT NAME/SUFFIX
343.015	1	NEESA/Code 11E, Port Hueneme, CA
351.008	1	NMCB/1, CO
351.006	1	NMCB/133, CO
351.018	1	NMCB/133, H-CO S3E (Engrg Dept)
351.011	1	NMCB/3, CO
351.002	1	NMCB/3, Ops Offr
351.007	1	NMCB/4, CO
351.003	1	NMCB/40, CO
351.012	1	NMCB/5, CO
351.001	1	NMCB/5, Ops Dept
351.005	1	NMCB/62, CO
351.017	1	NMCB/62, Code S-2
351.016	1	NMCB/62, Engrg Offr
351.010	1	NMCB/7, CO,
351.004	1	NMCB/74, CO
353.014	1	NOAA/Data Buoy Off, Engrg Div, Bay St. Louis, MS
356.026	1	NRL/PWO, Washington, DC
357.005	1	NSC/Code 70, Oakland, CA
357.009	1	NSC/Code 700, Norfolk, VA
357.004	1	NSC/Code 703, Pearl Harbor, HI
357.060	1	NSC/Puget Sound, SCE, Bremerton, WA
357.058	1	NSC/SCE, Charleston, SC
357.010	1	NSC/SCE, Norfolk, VA
357.069	1	NSC/SCE, Oakland, CA
357.061	1	NSC/SCE, Pearl Harbor, HI
357.059	1	NSC/SCE, San Diego, CA
357.001	1	NSD/SCE, Subic Bay, RP
358.030	1	NTC/SCE, Great Lakes, IL
359.004	1	NUSC/PWO, Newport, RI
359.014	1	NUSC DET/Code 4123, New London, CT
359.005	1	NUSC DET/PWO, New London, CT
370.003	1	OFFICE OF SECRETARY OF DEFENSE/Dir, Qlty Fac Acq, Washingt
391.001	1	PACMISRANFAC/HI Area, PWO, Kekaha, HI
398.002	1	PHIBCB/1, CO, San Diego, CA
398.005	1	PHIBCB/1, ELCAS Offcr, San Diego, Ca
398.003	1	PHIBCB/1, P&E, San Diego, CA
398.004	1	PHIBCB/2, CO, Norfolk, VA
403.011	1	PMTC/Code 5021 (S Opatowsky), Point Mugu, CA
405.002	1	POMFLANT/SPC10, Charleston, SC

I.D. NO. OF CODE	COPIES	ROOT NAME/SUFFIX
413.084	1	PWC/ACE (Code 110), Great Lakes, IL
413.124	1	PWC/ACE Office, Norfolk, VA
413.103	1	PWC/CO, Pensacola, FL
413.081	1	PWC/Code 10, Great Lakes, IL
413.028	1	PWC/Code 10, Oakland, CA
413.024	1	PWC/Code 100, Guam, Mariana Islands
413.083	1	PWC/Code 100A, Great Lakes, IL
413.003	1	PWC/Code 100E, Great Lakes, IL
413.095	1	PWC/Code 100E, Oakland, CA
413.072	1	PWC/Code 100E, San Diego, CA
413.073	1	PWC/Code 100E3, Oakland, CA
413.155	1	PWC/Code 101, Great Lakes, IL
413.135	1	PWC/Code 1011, Pearl Harbor, HI
413.099	1	PWC/Code 1013, Oakland, CA
413.011	1	PWC/Code 102, Oakland, CA
413.098	1	PWC/Code 110, Oakland, CA
413.059	1	PWC/Code 110C, Oakland, CA
413.075	1	PWC/Code 116, Yokosuka, Japan
413.080	1	PWC/Code 120, San Diego, CA
413.088	1	PWC/Code 130, Great Lakes, IL
413.069	1	PWC/Code 153, Guam, Mariana Islands
413.082	1	PWC/Code 30, Great Lakes, IL
413.019	1	PWC/Code 30, Norfolk, VA
413.070	1	PWC/Code 30, Pearl Harbor, HI
413.162	1	PWC/Code 30A, Great Lakes, IL
413.119	1	PWC/Code 30V, Norfolk, VA
413.086	1	PWC/Code 350, Great Lakes, IL
413.087	1	PWC/Code 400, Great Lakes, IL
413.010	1	PWC/Code 400, Oakland, CA
413.064	1	PWC/Code 400, Pearl Harbor, HI
413.065	1	PWC/Code 400, San Diego, CA
413.137	1	PWC/Code 412, San Diego, CA
413.158	1	PWC/Code 412.310, Norfolk, VA
413.085	1	PWC/Code 420, Great Lakes, IL
413.100	1	PWC/Code 420, Oakland, CA
413.015	1	PWC/Code 420, San Diego, CA
413.042	1	PWC/Code 420, Subic Bay, RP
413.160	1	PWC/Code 420B (Waid), Subic Bay, RP
413.139	1	PWC/Code 421 (Kaya), Pearl Harbor, HI
413.031	1	PWC/Code 421 (Reynolds), San Diego, CA
413.140	1	PWC/Code 422, San Diego, CA
413.141	1	PWC/Code 423, San Diego, CA
413.156	1	PWC/Code 423/KJF, Norfolk, VA
413.023	1	PWC/Code 424, Norfolk, VA
413.076	1	PWC/Code 430 (Kyi), Pearl Harbor, HI
413.168	1	PWC/Code 430 (Kyi), Pearl Harbor, HI
413.090	1	PWC/Code 500, Great Lakes, IL
413.020	1	PWC/Code 500, Norfolk, VA
413.096	1	PWC/Code 500, Oakland, CA

I.D. NO. OF CODE	COPIES	ROOT NAME/SUFFIX
413.077	1	PWC/Code 500, San Diego, CA
413.009	1	PWC/Code 505A, Oakland, CA
413.093	1	PWC/Code 590, San Diego, CA
413.091	1	PWC/Code 600, Great Lakes, IL
413.079	1	PWC/Code 600A, Norfolk, VA
413.102	1	PWC/Code 610, Pensacola, FL
413.045	1	PWC/Code 610, San Diego, CA
413.074	1	PWC/Code 610, Subic Bay, RP
413.154	1	PWC/Code 612, Pearl Harbor, HI
413.136	1	PWC/Code 614, San Diego, CA
413.067	1	PWC/Code 615, Guam, Mariana Islands
413.147	1	PWC/Code 616, Subic Bay, RP
413.092	1	PWC/Code 700, Great Lakes, IL
413.120	1	PWC/Code 700, Norfolk, VA
413.078	1	PWC/Code 700, San Diego, CA
413.122	1	PWC/Sec Dir, Subic Bay, RP
413.041	1	PWC/Util Dept (R Pascua), Pearl Harbor, HI
456.034	1	RNCB/Lant, CO, Norfolk, VA
456.033	1	RNCB/Pac, CO, Santa Barbara, CA
456.004	1	RNCFSU/Four, CO, Granite City, IL
456.002	1	RNCFSU/One, CO, Manor, PA
456.003	1	RNCFSU/Three, CO, Charleston, SC
456.005	1	RNCFSU/Two, CO, Ft Carson, CO
456.030	1	RNCR/Eight, CO, Philadelphia, PA
456.027	1	RNCR/Five, CO, San Francisco, CA
456.032	1	RNCR/Nine, CO, Dallas, TX
456.022	1	RNCR/One, CO, Los Alamitos, CA
456.028	1	RNCR/Seven, CO, Davisville, RI
456.024	1	RNCR/Six, CO, Glenview, IL
456.025	1	RNCR/Three One, CO, Santa Barbara, CA
456.026	1	RNCR/Three, CO, Atlanta, GA
456.031	1	RNCR/Two One, CO, Davisville, RI
456.029	1	RNCR/Two Zero, CO, Gulfport, MS
456.023	1	RNCR/Two, CO, Glenview, IL
456.011	1	RNMCB/Eighteen, CO, Seattle, WA
456.001	1	RNMCB/Fifteen, CO, Richards-Gebaur AFB, MO
456.014	1	RNMCB/Fourteen, CO, Jacksonville, FL
456.010	1	RNMCB/Seventeen, CO, Port Hueneme, CA
456.006	1	RNMCB/Sixteen, CO, Los Alamitos, CA
456.013	1	RNMCB/Thirteen, CO, Peekskill, NY
456.009	1	RNMCB/Twelve, CO, Davisville, RI
456.021	1	RNMCB/Two Eight, CO, Barksdale AFB, LA
456.007	1	RNMCB/Two Five, CO, Glenview, IL
456.017	1	RNMCB/Two Four, Redstone Arsenal, AL
456.020	1	RNMCB/Two One, CO, Lakehurst, NJ
456.016	1	RNMCB/Two Seven, CO, Brunswick, ME
456.019	1	RNMCB/Two Six, CO, Mt Clemens, MI

I.D. NO. OF CODE	COPIES	ROOT NAME/SUFFIX
456.015	1	RNMCB/Two Three, CO, Ft Belvoir, VA
456.012	1	RNMCB/Two Two, CO, Dallas, TX
456.018	1	RNMCB/Two Zero, CO, Columbus, OH
456.008	1	RNMCB/Two, CO, San Francisco, CA
484.001	1	SPCC/PWO (Code 08X), Mechanicsburg, PA
489.028	1	SUBASE/Bangor, PWO (Code 8323), Bremerton, WA
489.042	1	SUBASE/Energy Conserv, Kings Bay, GA
489.037	1	SUBASE/PWO, Groton, CT
489.041	1	SUBASE/PWO, Kings Bay, GA
489.024	1	SUBASE/SCE, San Diego, CA
523.002	1	UCT/ONE, CO, Norfolk, VA
523.003	1	UCT/TWO, CO, Port Hueneme, CA
539.006	1	USNA/Mech Engrg Dept (Power), Annapolis, MD
539.005	1	USNA/PWO, Annapolis, MD

TOTAL NUMBER OF I.D. CODES IS 759
TOTAL NUMBER OF COPIES IS 759

APPENDIX C

RESPONDENT COMMENTS AND SUGGESTIONS

RANK/GRADE	ORGANIZATION	YEARS OF EXPERIENCE
04	PWD	20

"Main problem with locating previously published NCEL studies lies with our organization. We don't keep good files of NCEL publications..."

04 13

"I have personally found NCEL to be very responsive to problems I have experienced."

04 13

"NCEL should tailor what it mails different activities. We're an inland NAS yet receive a lot of material which pertains to waterfront construction which is no use to us."

03 9

"Keep them, they are useful."

03 8

"Thank you for your interest."

03 7

"Continue to field phone calls from Field Activities. NCEL'S follow up is outstanding."

03 4

"My organization does not contract out to NCEL, partly due to geographic location."

"I have used NCEL'S expertise only twice, but was satisfied with the support I received. As a small PWD (40 men), we do not do any design or maintain much of a tech library."

03 4

"NCEL is too far from here to call easily with questions. Also, except for a small two page excerpt every once in a while I don't know what they do. Most of the excerpts contain information on research that does not apply to my small base. Some of the excerpts are so technical you can not understand them."

02 3.5

"NCEL is out of touch with the day to day problems of a small (less than a 100) Public Works Department. Their support for overseas activities is minimal."

02 2.5

"Previously, I have never formally used NCEL services."

Director Engineering Div. 20

"The NCEL should provide more of down to earth recommendations on construction and maintenance methods and materials. (i.e., TM # M-52-86-02 Reflective Floor Coatings for Aircraft Maintenance Hangers, By P.S. Hearst, Ph.D.)."

GM-13 15

"NCEL publications are sometimes not applicable to overseas situations, however we find them usually informative and helpful, and retain them as permanent reference."

GM-13 15

"Quality of research is poor. Image is poor."

GM-13 11

"More frequently publish phone numbers and contact points for NCEL plus a brochure on topics which can be studied."

GS-12 PWD 25

"Try to keep up the good work. Do not contract this service out to contractors. PUBLICITY!"

GS-12 21

"Some studies/reports are too technical for the average engineer to be of any real meaning or value. A good many are not applicable to Shore Activity problems or concerns."

GS-12 18

"1. Some questions require a qualified answer."

GS-12 17

"My problem is lack of adequate manpower rather than lack of technical support or expertise. It is rare that I have the time to call NCEL, I'm too busy trying to get work out and handle daily problems. I do enjoy the bulletins, and I know that NCEL is a top notch outfit, but our work is normally general maintenance and new construction."

GS-12 15

"I feel very good about my interface with NCEL and the results furnished by them on specific problems."

GS-12 15

"Avoid graphs which sometimes are misleading than being informative. Reports must be prepare for certain type of receiver/type of profession - for each is much different from chemical, although some maybe related to each other."

GS-12 15

"Who gets Index?"

GS-12 5

"Ya'll gentlemen do good work!"

GS-12 4

"NCEL needs to get word out to us as to its' services, publications, etc. NCEL needs to market itself. I don't believe the EFD's have the technical expertise (I worked at WESTDIV for a while), but EFD's are convenient. I don't have time to read your publications at work. I do it on my own time."

GS-11	PWD	6

"I don't receive enough technical data relating to facilities!"

GS-11		6

"Provide index of NCEL data available to better align needs and data provided."

GS-11		2

"Time, resources, and money are the three critical track-items of any critical path system. Shortages of any three dictate changes in path. Most critical of our EFD is time. Usually, problem identification is within an ongoing project with set completion dates which funding is set up for. Enlisting assistance from NCEL would adversely affect time and money of project REGARDLESS of its resources. Local assistance is used to help problem identification and solution concurrently for expediency. Proper planning prevents piss poor performance, however the Navy is not known for its proper planning, foresight, or scale of economy."

WD-8		9

"Information on background of NCEL. How can we use it and how do we get literature?"

Civilian		2.5

"I don't use NCEL. Occasionally I request reports, but generally find item to vague to be useful in a direct application."

RANK/GRADE	ROICC	YEARS OF EXPERIENCE
05		17

"NCEL suffers from "Publish or Perish". Too much money is spent publishing academic esoteria. Abstracts written by technical writers are better. No one is interested in reading anything else on geodesic domes, anchors, etc. NCEL "Answer Man" service is excellent. Recommend NAVFAC DCOS have more say over issues being researched and priorities."

05		15

"Most members of my staff have limited NAVFAC experience and association with NCEL."

04	ROICC	13

"Former NCEL Staffer!! NCEL programs are driven by NAVFAC headquarters. NAVFAC Hdqtrs. doesn't know or relate to field problems so how can NCEL. Good luck!"

04		12

"NCEL does not play a role in my daily professional life."

03		6

"The basic/biggest problems with NCEL is they cover items TOO INFREQUENTLY ENCOUNTERED (for the most part). I'd like to see more on everyday type problems."

RANK/GRADE	PWC	YEARS OF EXPERIENCE
05		18

"NCEL did a super job coordinating and administering replacement of about 100 PCB transformers. Cost about $4 million. We are working with them to identify methods for testing and determining condition of underground cables."

03		8

"Provide better publicity on NCEL capabilities and charter."

GM-14		16

"Financial * Financial * Financial. NCEL must get their act together."

GM-13		4

"Few of the studies and reports conducted by NCEL are directly applicable to the type of maintenance and repair work performed by PWD's or PWC's."

GS-12		1.5

"Very pleased with the work/recommendations provided by Jerry Durmer and appreciate his follow-up phone calls."

RANK/GRADE	OICC	YEARS OF EXPERIENCE
03		9

"Move all the billets at NCEL to the new South-West Div in San Diego. NCEL's function could be absorbed by the new EFD, the same way CHESDIV is the transportation manager."

03		7

"Comments are primarily a direct reflection of two personal experiences with NCEL on specific field problems."

RANK/GRADE	CB	YEARS OF EXPERIENCE
05		15

"I'm a strong advocate and supporter of NCEL. If they don't have the answer, they'll help find one."

04	CB	12

"Have not utilized/requested NCEL assistance."

03		8

"NCEL has ALWAYS provided the type of support that I need."

02		18

"We don't use NCEL to carry out our mission. I requested some information on 0.1 burners and the information I received was outstanding."

RANK/GRADE	EFD	YEARS OF EXPERIENCE
06		26

"Survey poorly suited for someone in my job."

GM-14		28

"Suggest NCEL make all publications, reports, technical notes, etc. as user friendly as possible. I prefer User Guides."

GM-14 **EFD** 27

"NCEL has called us for consultation several times over the past few years; we have never called on them in our area of expertise."

GM-14 19

"Keep up the good work."

GM-14 6

"Questions 14, 17 and 31 cannot be answered by EFD."

GM-13 19

"Many questions were not applicable to the facility planning function at LANTNAVFAC. Less than 100% of questions answered!"

GS-12 32

"Some of the research being done is so highly theoretical, application to NAVFAC problems is not apparent. Such research should be assigned to the colleges and universities."

GS-12 21

"We contracted the writing of 4 O&M manuals to NCEL in the past 4 years. 3 were extremely late and the other was outstanding in quality and timeliness (it was sub-contracted.")

GS-12 17

"Suggest a floppy disk indexing system. Indexed in various fashion, such as keyword, construction specification. Institute (16 Division) format and category code. The best feature of Encyclopedia Britannica is its 30 seconds-to-find-it index system."

GS-12 8

"Lab needs to address field problems with short range solutions until a better long range plan is accomplished. Need MORE ANSWERS and LESS RESEARCH."

RANK/GRADE	NAVFAC	YEARS OF EXPERIENCE
05		21

"Major complaints on NCEL work:
a. Not on budget.
b. Not on schedule."

GM-15		25

"Field should always contact EFD, they probably have answer and it keeps them informed. Field should also contact NCEL be aware or pertinent source or recommended by EFD."

GM-15		23

"Comply with Blue Ribbon Panel. Develop more centers of expertise."

GM-14		22

"My evaluation is based on dealings with seven divisions at NCEL. There is a great variation in the quality and responsiveness of each. The Ocean Systems Division (L43) gets very high marks from me. The rest of the divisions tend to bring the average down."

GM-14		12

"Compared to other organizations I work with, time spent with NCEL is the least innovative. NCEL's role is essential and has great potential that is not being realized now."

GM-13		28

"I have seen good and bad reports from NCEL, unfortunately more bad."

GS-12		12

"NCEL tech expert tend to be more concerned about ego and status then providing good solid recommendation. They do not listen well to technical critism about application of theories."

GS-12		2

"Was not able to get copies of NCEL reports directly from NCEL. Was informed that reports are only available through DTIC at a fee. Is this correct as a bona fide Government Agency? Why?"

GM-13 NAVFAC 5

"Good luck on your survey. I think NCEL is a great place to work, they just need to clean/clear-up their EEO problems. Probably the worst in the USN."

RANK/GRADE	RESERVE	YEARS OF EXPERIENCE
06		3

"Many of these questions do not apply as I have had no personal contact with NCEL in 23 years of military service. EFD has been the primary source of technical info."

05 20

"I had a problem in dealing with NCEL in 1985 when NAVFAC tried to send me there on ACDUTRA. If they are always that negative; people will avoid them."

RANK/GRADE	OTHER	YEARS OF EXPERIENCE
06		27

"1. Customer satisfaction questionaires must be completed at least ANNUALLY to the SAME organizational unit to be useful."

06 26

"Staff officers normally deal through PWC's or EFD's.....not normally directly with NCEL."

04 14

"Keep up the good work!"

04 12

"Read about NCEL in CEC magazine. Called them once `cause my boss told me to. Otherwise, just have never felt "wired in" to NCEL work other than TECHDATA sheets and OCCASIONAL reports I've seen. I know they're there; just figure they're helping someone out there to stay in business."

03 9

"NCEL is a responsive, research group that has always met my needs for information in a FAST, responsible manner."

"Too many Tech reports on an individual product. They read like a sales brochure rather than an objective report."

GM-14 20

"I'm less than 1 mile from NCEL. I use their technical consultents for materials, painting and welding problems that occur in production. I can get to them quickly and with minimal effort. I contract with NCEL's Amphibious or design group because they have the expertise to get up to speed quickly."

GM-13 10

"Contact with NCEL was active during 10 year period (1974-1984) while assigned to PMTC Surface Targets Division at Port Hueneme. NCEL provided contract shop support, technical consulation and photographic support. Good to excellent NCEL support."

BIBLIOGRAPHY

Naval Post Graduate School Report NPS-54-80-011, Evaluation of the Utilization of Research and Development Results by the Naval Facilities Engineering Command, by Michael G. Akin, Gerald D. Nix, and Gordon R. Jefferson, September 1980.

Naval Facilities Engineering Command, Report of the Naval Civil Engineering Laboratory "Blue Ribbon" Panel, by Capt. E. R. Wilson, Chairman NCEL Panel, 31 August 1988.

Dillman, D. A., Mail & Telephone Surveys: The Total Design Method, John Wiley & Sons, Inc., 1978.

Erdos & Morgan, Professional Mail Surveys, McGraw-Hill Book Co., 1970.

Viladas, J. M., The Book of Survey Techniques, Havemeyer Books, 1982.

Alwin, D. F., Survey Design & Analysis; Current Issues, Sage Publications, Inc., 1978.

Bradburn, N. M., Improving Interview Method and Questionnaire Design, Seymour Sudman & Associates, 1982.

Sudman, S., and Bradburn, N. M., Asking Questions, Seymour Sudman & Associates,1982.

Babbie, E. R., Survey Research Methods, Wadsworth Publishing Co., 1973.

Fowler, F. J. Jr., Survey Research Methods, Sage Publications, Inc., 1984.

Buckley, Buckley and Chaing, Research Methodolgy and Business Decisions, National Association of Accountants, 1976.

Payne, S. L., The Art of Asking Questions, Princeton University Press, 1959.

INITIAL DISTRIBUTION LIST

	No. Copies
1. Defense Technical Information Center Cameron Station Alexandria, VA 22314-6145	2
2. Library, Code 0142 Naval Postgraduate School Monterey, CA 93943-5002	2
3. Prof. D. R. Whipple, Code 54 Wp Department Chairman Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93943-5002	1
4. Prof. J. L. McCaffery, Code 54 Mm Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93943-5002	1
5. Prof. B. J. Roberts, Code 54 Ro Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93943-5002	1
6. Prof. J. W. Creighton, Code 54 Cf Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93943-5002	2
7. Mr. A. S. Bradford, Code 03 Naval Facilities Engineering Command 200 Stovall Street Alexandria, VA 22332-2300	1
8. Mr. Milon Essoglou, Code 03T Naval Facilities Engineering Command 200 Stovall Street Alexandria, VA 22332-2300	1
9. Capt. D. R. Wells, Code L01 Commanding Officer Naval Civil Engineering Laboratory Port Hueneme, CA 93043-5003	1

10. Dr. R. N. Storer, Code L03 — 1
Technical Director
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

11. Ms. M. G. Lingua, Code L03B — 50
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

12. Mr. J. M. Dummer, Code L03C — 1
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

13. Mr. T. L. Culbertson, Code L30 — 1
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

14. Mr. R. N. Cordy, Code L40 — 1
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

15. Mr. M. E. Hollan, Code L50 — 1
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

16. Mr. C. K. Smith, Code L60 — 1
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

17. Mr. S. M. Ehret, Code L70 — 1
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

18. Maj. John Brusca, MCLNO — 1
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

19. Technical Library, Code L06C — 1
Naval Civil Engineering Laboratory
Port Hueneme, CA 93043-5003

20. Lcdr. T. K. Equels, Code 03A — 1
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, VA 22332-2300

21. Ms. J. S. Edler, Code 03C — 1
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, VA 22332-2300

22. Mr. R. B. Bersson, Code 03R 1
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, VA 22332-2300

24. Ms. V. Turner, Code 03P 1
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, VA 22332-2300

25. Mr. H. H. Zimmerman, Code 04 1
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, VA 22332-2300

26. Mr. P. H. Cave, Code 04R 1
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, VA 22332-2300

27. Lt. Z. A. Myers, Code 09A 1
OICC Marianas
P. O. Box 175
FPO San Francisco 96630

Thesis
M9973
c.1

Myers
An assessment of the Naval Facilities Engineering Command's investments in research and development.

Thesis
M9973
c.1

Myers
An assessment of the Naval Facilities Engineering Command's investments in research and development.

An assessment of the Naval Facilities En

3 2768 000 83633 2
DUDLEY KNOX LIBRARY